12500 TI Boulevard, MS 8640, Dallas, Texas 75243

PCN# 20160301000
Qualification of Carsem Suzhou (CSZ) as additional Assembly and Test Site for Select Devices
Change Notification / Sample Request

Date: 3/1/2016
To: TOKYO ELECTRON DEVICE (DSTR) PCN

Dear Customer:

This is an announcement of a change to a device that is currently offered by Texas Instruments. The details of this change are on the following pages.

We request you acknowledge receipt of this notification within **30** days of the date of this notice. Lack of acknowledgement of this notice within 30 days constitutes acceptance of the change. If you require samples or additional data to support your evaluation, please request within 30 days.

The changes discussed within this PCN will not take effect any earlier than **90** days from the date of this notification, unless customer agreement has been reached on an earlier implementation of the change. This notification period is per TI's standard process.

This notice does not change the end-of-life status of any product. Should product affected be on a previously issued product withdrawal/discontinuance notice, this notification does not extend the life of that product or change the life time buy offering/discontinuance plan.

For questions regarding this notice, contact your local Field Sales Representative or the PCN Manager (PCN_ww_admin_team@list.ti.com).

Sincerely,

PCN Team
SC Business Services

20160301000
Attachment: 1

Products Affected:

The devices listed on this page are a subset of the complete list of affected devices. According to our records, these are the devices that you have purchased within the past twenty-four (24) months. The corresponding customer part number is also listed, if available.

DEVICE	CUSTOMER PART NUMBER
TPS54622RHLT	null
TPS54622RHLR	null
TPS51716RUKT	null

Technical details of this Product Change follow on the next page(s).

PCN Number:	20160301000	PCN Date:	03/01/2016
Title:	Qualification of Carsem Suzhou (CSZ) as additional Assembly and Test Site for Select Devices		
Customer Contact:	PCN Manager	Dept:	Quality Services
Proposed 1st Ship Date:	06/01/2016	Estimated Sample Availability:	Date Provided at Sample request

Change Type:					
☒	Assembly Site	☐	Design	☐	Wafer Bump Site
☐	Assembly Process	☐	Data Sheet	☐	Wafer Bump Material
☒	Assembly Materials	☐	Part number change	☐	Wafer Bump Process
☐	Mechanical Specification	☒	Test Site	☐	Wafer Fab Site
☐	Packing/Shipping/Labeling	☐	Test Process	☐	Wafer Fab Materials
				☐	Wafer Fab Process

PCN Details

Description of Change:

Qualification of Carsem Suzhou (CSZ) as additional Assembly and Test Site for Select Devices listed in the "Product Affected" Section. Current assembly sites and Material differences are as follows.

Assembly Site	Assembly Site Origin	Assembly Country Code	Assembly Site City
TI Malaysia	MLA	MYS	Kuala Lumpur
TI Clark	QAB	PHL	Angeles City, Pampanga
Carsem Suzhou	**CSZ**	**CHN**	**Jiangsu**

Material Differences:

	TI Malaysia	TI Clark	Carsem Suzhou
Mount compound	4205846, 4207768	4207768	435143

Test coverage, insertions, conditions will remain consistent with current testing and verified with test MQ.

Reason for Change:

Continuity of Supply

Anticipated impact on Material Declaration

☐	No Impact to the Material Declaration	☒	Material Declarations or Product Content reports are driven from production data and will be available following the production release. Upon production release the revised reports can be obtained from the TI ECO website.

Anticipated impact on Form, Fit, Function, Quality or Reliability (positive / negative):

None

Changes to product identification resulting from this PCN:

Assembly Site		
TI Malaysia	Assembly Site Origin (22L)	ASO: MLA
TI Clark Philippines	Assembly Site Origin (22L)	ASO: QAB
Carsem Suzhou	Assembly Site Origin (22L)	ASO: CSZ

Sample product shipping label (not actual product label)

ASSEMBLY SITE CODES: TI-Malaysia = K, TI-Clark = I, Carsem Suzhou = F

Product Affected:

SN0706026RHHR	TPS51716RUKT	TPS54320RHLT	TPS54622RHLT
TPS51716RUKR	TPS54320RHLR	TPS54622RHLR	

Qualification Report

RHLR & RHHR Package QUAL in CARZ
Approve Date 18-Feb-2016

Product Attributes

Attributes	Qual Device: SN0706026RHH	Qual Device: TPS54320RHL	Qual Device: TPS54622RHLR
Assembly Site	CARSEM SUZHOU	CARSEM SUZHOU	CARSEM SUZHOU
Package Family	QFN/SON	QFN/SON	QFN/SON
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0
Wafer Fab Supplier	DM5-DALLAS	MH8	MIHO 8
Wafer Process	LBC4	LBC7	LBC7

Attributes	QBS Package Reference: SN1010017RSAR2	QBS Package Reference: TPS51123RGE	QBS Package Reference: TPS53211RGT
Assembly Site	CARSEM SUZHOU	CARSEM SUZHOU	CARSEM SUZHOU
Package Family	QFN/SON	QFN/SON	QFN/SON
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0
Wafer Fab Supplier	MH8	DL LIN	MIHO8
Wafer Process	LBC7	LBC4	LBC7

- QBS: Qual By Similarity
- Qual Devices qualified at LEVEL2-260C: TPS54622RHLR, TPS54320RHL, SN0706026RHHR

Qualification Results

Data Displayed as: Number of lots / Total sample size / Total failed

Type	Test Name / Condition	Duration	Qual Device: SN0706026RHH	Qual Device: TPS54320RHL	Qual Device: TPS54622RHL
AC	Autoclave 121C	96 Hours	3/231/0	-	-
ED	Electrical Characterization	Per Datasheet Parameters	-	-	-
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	-
HTSL	High Temp. Storage Bake, 170C	420 Hours	-	-	-
SD	Surface Mount Solderability	Pb Free	-	-	-
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0	-	-
WBP	Bond Pull	Wires	3/228/0	1/76/0	1/76/0
WBS	Ball Bond Shear	Wires	3/228/0	1/76/0	1/76/0

Type	Test Name / Condition	Duration	QBS Package Reference: SN1010017RSAR2	QBS Package Reference: TPS51123RGER	QBS Package Reference: TPS53211RGT
AC	Autoclave 121C	96 Hours	3/231/0	3/231/0	3/231/0
ED	Electrical Characterization	Per Datasheet Parameters	1/10/0	1/10/0	-
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	3/230/0
HTSL	High Temp. Storage Bake, 170C	420 Hours	3/231/0	3/230/0	3/231/0
SD	Surface Mount Solderability	Pb Free	-	3/66/0	-
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0	3/231/0	3/231/0
WBP	Bond Pull	Wires	-	-	-
WBS	Ball Bond Shear	Wires	-	-	-

- Preconditioning was performed for Autoclave, Unbiased HAST, THB/Biased HAST, Temperature Cycle, Thermal Shock, and HTSL, as applicable
- The following are equivalent HTOL options based on an activation energy of 0.7eV : 125C/1k Hours, 140C/480 Hours, 150C/300 Hours, and 155C/240 Hours
- The following are equivalent HTSL options based on an activation energy of 0.7eV : 150C/1k Hours, and 170C/420 Hours
- The following are equivalent Temp Cycle options per JESD47 : -55C/125C/700 Cycles and -65C/150C/500 Cycles

Quality and Environmental data is available at TI's external Web site: http://www.ti.com/

Green/Pb-free Status:

Qualified Pb-Free(SMT) and Green

Qualification for Carsem Suzhou site for QFNs with Cu wire for thick top metal (>= 6000A) AlPad devices

Approved on 12/14/2012

This qualification has been specifically developed for the validation of this change. The qualification data validates that the proposed change meets the applicable released technical specifications.

Qual Vehicle # 1: 2ELVC412CDRTJR (MSL2-260C)

Package Construction Details

Assembly Site:	CARSEM SUZHOU	Mold Compound:	SID#441086
# Pins-Designator, Family:	20-RTJ, WQFN	Mount Compound:	SID#435143
Lead frame (Finish, Base):	NiPdAu, Cu	Bond Wire:	1.0 Mil Dia., Cu

Qualification: ☐ **Plan** ☒ **Test Results**

Reliability Test	Conditions	Sample Size/Fail		
		Lot#1	Lot#2	Lot#3
**High Temp. Storage Bake	170C (420hrs)	77/0	77/0	77/0
**Autoclave 121C	121C, 2 atm (96 Hrs)	77/0	77/0	77/0
**T/C -65C/150C	-65C/+150C (500 Cyc)	77/0	77/0	77/0
Manufacturability	(per mfg. Site specification)	Pass	Pass	Pass
Moisture Sensitivity	(level 2 @ 260C peak +5/-0C)	12/0	-	-

Notes **- Preconditioning sequence: Level 2-260C.

Qual Vehicle # 2: ONET8501PBRGTR (MSL2-260C)

Package Construction Details

Assembly Site:	CARSEM SUZHOU	Mold Compound:	SID#441086
# Pins-Designator, Family:	16-RGT, VQFN	Mount Compound:	SID#435143
Lead frame (Finish, Base):	NiPdAu, Cu	Bond Wire:	1.0 Mil Dia., Cu

Qualification: ☐ **Plan** ☒ **Test Results**

Reliability Test	Conditions	Sample Size/Fail		
		Lot#1	Lot#2	Lot#3
**High Temp. Storage Bake	170C (420hrs)	77/0	77/0	77/0
**Autoclave 121C	121C, 2 atm (96 Hrs)	77/0	77/0	77/0
**T/C -65C/150C	-65C/+150C (500 Cyc)	77/0	77/0	77/0
Manufacturability (Assembly)	(per mfg. Site specification)	Pass	Pass	Pass
Moisture Sensitivity	(level 2 @ 260C peak +5/-0C)	12/0	-	-

Notes **- Preconditioning sequence: Level 2-260C.

Qual Vehicle # 3: TPS51728RHAR (MSL3-260C)

Package Construction Details

Assembly Site:	CARSEM SUZHOU	Mold Compound:	SID#441086
# Pins-Designator, Family:	20-RTJ, VQFN	Mount Compound:	SID#435143
Lead frame (Finish, Base):	NiPdAu, Cu	Bond Wire:	1.0 Mil Dia., Cu

Qualification: ☐ **Plan** ☒ **Test Results**

Reliability Test	Conditions	Sample Size/Fail		
		Lot#1	Lot#2	Lot#3
**High Temp. Storage Bake	170C (420 Hrs)	77/0	77/0	77/0
**Autoclave 121C	121C, 2 atm (96 Hrs)	76/0	75/0	77/0
**T/C -65C/150C	-65C/+150C (500 Cyc)	77/0	77/0	77/0
Manufacturability	(per mfg. Site specification)	Pass	Pass	Pass
Moisture Sensitivity	(level 3 @ 260C peak +5/-0C)	12/0	-	-

Notes **- Preconditioning sequence: Level 3-260C.

Qual Vehicle # 4: TPS53211RGTR (MSL2-260C)

Package Construction Details

Assembly Site:	CARSEM SUZHOU	Mold Compound:	SID#441086
# Pins-Designator, Family:	16-RGT, VQFN	Mount Compound:	SID#435143
Lead frame (Finish, Base):	NiPdAu, Cu	Bond Wire:	1.0 Mil Dia., Cu

Qualification: ☐ **Plan** ☒ **Test Results**

Reliability Test	Conditions	Sample Size/Fail		
		Lot#1	Lot#2	Lot#3
**Biased HAST	130C/85%RH (96hrs)	77/0	76/0	77/0
**High Temp. Storage Bake	170C (420hrs)	77/0	77/0	77/0
**Autoclave 121C	121C, 2 atm (96 Hrs)	77/0	77/0	77/0
**T/C -65C/150C	-65C/+150C (500 Cyc)	77/0	77/0	77/0
Manufacturability (Assembly)	(per mfg. Site specification)	Pass	Pass	Pass
Moisture Sensitivity	(level 2 @ 260C peak +5/-0C)	12/0	-	-

Notes **- Preconditioning sequence: Level 2-260C.

Qual Vehicle # 5: UCD9211RHAR (MSL3-260C)

Package Construction Details

Assembly Site:	CARSEM SUZHOU	Mold Compound:	SID#441086
# Pins-Designator, Family:	40-RHA, VQFN	Mount Compound:	SID#435143
Lead frame (Finish, Base):	NiPdAu, Cu	Bond Wire:	0.8 Mil Dia., Cu

Qualification: ☐ **Plan** ☒ **Test Results**

Reliability Test	Conditions	Sample Size/Fail		
		Lot#1	Lot#2	Lot#3
**High Temp. Storage Bake	170C (420hrs)	77/0	77/0	77/0
**Autoclave 121C	121C, 2 atm (96 Hrs)	77/0	77/0	77/0
**T/C -65C/150C	-65C/+150C (500 Cyc)	77/0	77/0	77/0
Salt Atmosphere	24 hrs	22/0	22/0	22/0
Manufacturability (Assembly)	(per mfg. Site specification)	Pass	Pass	Pass
Moisture Sensitivity	(level 3 @ 260C peak +5/-0C)	12/0	-	-

Notes **- Preconditioning sequence: Level 3-260C.

For questions regarding this notice, e-mails can be sent to the regional contacts shown below or your local Field Sales Representative.

Location	E-Mail
USA	PCNAmericasContact@list.ti.com
Europe	PCNEuropeContact@list.ti.com
Asia Pacific	PCNAsiaContact@list.ti.com
Japan	PCNJapanContact@list.ti.com